USSR

UDC 535/33/.34:539.18

YAKUTINA, O. A., RATOVSKIY, G. V., FROLOV, YU. L., SERGIYENKO, L. M., ROZINOV, V. G., Irkutsk University, Irkutsk Institute of Organic Chemisty

"Spectral Study of the Mutual Effect of Functional Groups in Molecules of Tertiary Aromatic Phosphines"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 7, No 4, 1971, pp 514-519

Abstract: At this time there is no single view of the reaction between structural groups within molecules of aromatic phosphines, and the various assumptions made about them lead to contradictions in the interpretation of the electron transitions.

The authors studied electron and Raman spectra for the group $(p\text{-}X_6H_4)P$, where X = H, $CH_3$, $OCH_3$, $OC_2H_5$, Cl, $Si(CH_3)$, and $N(CH_3)_2$, and also for molecules of $(C_5H_4)_3P(O)$, $(C_6H_5CH_2)_3P(O)$ and finally, $(m\text{-}NO_2C_6H_4)P(O)$.

The reaction was assumed to take place both by the $p\pi$-$p\pi$ transition and the $p\pi$-$d\pi$ transition mechanisms.

1/1

USSR

UDC 547.341

TIMOKHIN, B. V., GRECHKIN, Ye. F., TRAN'KOVA, N. A., and YAKUTINA, O. A.,
Irkutsk State University imeni A. A. Zhdanov

"Reaction of Organic Derivatives of Phosphorus Pentachloride with Grignard Reagents"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, pp 103-105

Abstract: Previous work by the authors showed that phenyltetrachlorophosphorane reacts with phenylmagnesium bromide in a 1:3 ratio to give triphenylphosphine. The authors undertook to ascertain the synthetic possibilities of this reaction and to find how the tertiary phosphine yield is affected by the nature of the organic radical in the Grignard reagent. It was found that phenyltetrachlorophosphorane, when participating in a reaction with a Grignard reagent which has alkyl radicals, is reduced to give trivalent phosphorus compounds. The yield of tertiary phenyldialkylphosphines is considerably lower than the yield of triphenylphosphine obtained by the analogous reaction and shows a regular decline with an increase in the volume of the substituent at the phosphorus atom. An exception is phenyldiisobutylphosphine, whose yield is considerably higher. The lower yield of phenyldialkylphosphines is apparently

1/2

USSR

TIMOKHIN, B. V., et al., Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, pp 103-105

due to the possible formation of phosphonium salts, as well as the formation of tertiary phosphine oxides as a result of reduced oxidizing capacity. Styryltetrachlorophosphorane likewise reacts with Grignard reagents to form tertiary styrylphosphines.

USSR UDC 581.327.11

GOLOVIZNIN, K. M., ZARETSKAS, V.-S. S., RAGUL'SKIS, K. M., RUDGAL'VIS, B. V., YAKUTIS, T. V., Kaunas Polytechnical Institute

"A Device for Data Registration"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288413, class 42, filed 23 May 69, published 3 Dec 70, p 154

Translation: This Author's Certificate introduces a device for data registration which contains a videographic tube with deflecting system, and a hollow drum with a carrier. As a distinguishing feature of the patent, the functional possibilities of the device are extended by installing additional electrodes along the printing line of the videographic tube. These electrodes are connected to one of the outputs of a trace module whose other output is connected to the beam current modulator of the tube, and the deflecting system is connected to the recording signal amplifier, the scanning oscillator and the input of the trace module respectively.

1/1

UDC 632.4:582.288.42:633.511

USSR

YAKUTKIN, V. I., All Union Institute of Plant Protection, Leningrad

"The Effect of the Amount of Inoculum of Verticillium dahliae Kleb. on the Degree of Injury to Cotton"

Leningrad, Mikologiya i Fitopatologiya, No 5, 1971, pp 474-476

Abstract: Wilt resistance of two cotton varieties (108-F and Tashkent 1) was determined after measured quantities of conidia were inoculated into the stems. Two forms of the pathogen were used -- the microsclerotial and mycelial forms. The manifestations of wilt in relation to the amount of inoculum were assessed from the rate of injury to the leaves, percentage of affected plants, and length of the incubation period of the disease. 108-F suffered maximum injury with large titers of the inoculum ($10^5$ and $10^7$) and when the microclerotial form was used. Tashkent 1 proved less susceptible. The amount of inoculum and length of the incubation period were inversely related: the higher the titer of inoculum, the shorter the incubation period and vice versa. The degree of injury also depended on the length of the incubation period. The disease was more severe when the incubation period was short.

1/1

Rare Metals

USSR UDC: 669.794

SUGAREYEV, Yu. S., TAUBIN, M. L., and YAKUTOVICH, M. V., Moscow

"Thermophysical Properties of Yttrium at Temperatures Above 20°C"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 215-217

Abstract: The rather limited data on the thermophysical properties of yttrium at elevated temperatures is fragmentary since the tests involved metal specimens with different prehistories. This study deals with the heat electric, and temperature conductance and heat capacity of yttrium at high. temperatures. The experiment involved distilled yttrium remelted in an arc furnace at lowered residual argon pressure. The chemical composition of the metal was (wt.%): 99.7 Y; 0.03 Cu; 0.01 Al; 0.03 Fe; 0.02 Mo; 0.12 Cd; 0.02 N; 0.03 O; <0.01 Ta; <0.01 Ca; <0.003 Ni; 0.003 Si. Temperature dependences are cited for heat conductance, heat capacity, temperature conductivity, and electroconductivity within 20 to 400°C. The empirical temperature dependence of heat capacity is $C_p=294.3+1.59T-3.3\cdot10^{-4}T$ [joule/kg·deg]. The evaluation of the electron and phonon com-

1/2

USSR

SUGANEYEV, Yu. S., et al, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 215-217

ponents of the heat conductance in yttrium indicates that the increase of the phonon component with temperature is owing to the fact that atomic vibrations in the crystal lattice (on heating) become more intensive. An increase in atomic vibration amplitude and, in phonon energy leads to a rise in heat conductance due to the motion of phonons. On the other hand, with an increase in atomic vibrations there is also an increase in the effect of electron scattering on the formed defects (vacancies), the latter increasing in concentration with temperature. This might explain the rather weak dependence of the electron component on temperature.

2/2

Single Crystals

USSR

UDC 669.28:559.374

YASTREBKOV, A. A., OPLESNIN, B. A., LUBENETS, V. P., KOSYREV, Yu. N., and YAKUTOVICH, M. V.

"The Annealing of Plastically Bent Molybdenum Single Crystals"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 4, Apr 71, pp 843-848

Abstract: Structural changes and kinetics of polygonization by annealing plastically bent single crystals of molybdenum of four orientations were investigated by X-ray and metallographic methods. It was found that the deformation character depends on the crystal orientation. Kinetics of substructural changes by isothermal annealing in the temperature interval of 1700°C to 2500°C and the extinguishing character of the growth of polygons are discussed. The investigation results are analyzed by reference to microstructures, topograms, and the established dependence of the change of the orientation angle of neighboring blocks on the aging time by isothermal annealing. Four illustr., five biblio. refs.

1/1

USSR UDC 621.791.1

SUGANEYEV, YU. S., SHORSHOROV, M. KH., and YAKUTOVICH, M. V., Moscow

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 70, pp 99-106

Abstract: Formation of a welded union of dissimilar metals in the solid state can be regulated by the following processes: 1) mass transfer in the contact zone, caused, evidently, by different atomic mechanisms and determining the buildup of the contact surface of the interface or formation of physical contact; 2) desorption, dissociation, or dissolution of oxide and other films or absorbed gases contaminating the welded surfaces; 3) activation of surfaces and formation of chemical bonds at the interface. Specimens were welded in a vacuum of $10^{-5}$ mm Hg. Metals used were not less than 99.8% (Mo) and 99.5% (Y) in purity. Surfaces of molybdenum and yttrium prior to welding were polished on emery paper and degreased with alcohol. The strength of the molybdenum-yttrium union formed as a function of welding temperature showed that strength, under otherwise equal conditions, rises rapidly with temperature. The maximum strength of the union corresponds to the tensile strength of yttrium. Failure of these specimens in testing occurred in yttrium close to the contact surface of the interface, in contrast to specimens not attaining maximum strength, which ruptured along the abutment.

1/1

USSR UDC 533.6.011.8

YALAMOV, Yu. I., OBUKHOV, B. A., and DERYAGIN, B. V., Corresponding Member of the USSR Academy of Sciences, Institute of Physical Chemistry, Moscow

"Diffusiphoresis of Large Nonvolatile Aerosol Particles"

Moscow, Doklady Akademii Nauk SSSR, Vol 207, No 4, 1972, pp 824-826

Abstract: An aerosol particle in a nonuniformly concentrated gas mixture experiences a diffusiphoretic force. In an earlier article (Yalamov, Yu. I., et al, ZhTF, No 5, 1972) expressions were obtained for the force and for the velocity of the particle by neglecting the inertial terms of the Navier-Stokes equations. In the present paper, the effects of the inertial forces are taken into account to find the diffusiphoretic forces. The analysis begins with the consideration, in a spherical system of coordinates, of a spherical particle of given radius which is large compared to the average length of the molecular free path. The system of equations for the relative concentration, the velocity, and the pressure of the binary gas mixture is presented. The expression found for the force acting on the particle shows it to be the sum of viscous and diffusiphoretic forces, vanishing for a uniformly moving particle. An expression is obtained for the velocity of the particle which coincides with that obtained earlier with the inertial forces not taken into account.

1/1

USSR

UDC 533.15

YALAMOV, Yu. I., ALADZHYAN, V. M., GALOYAN, V. S., and DERYAGIN, B. V., Corresponding Member of the Academy of Sciences USSR, Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Diffusiophoresis of Volatile Aerosol Particles in a Slipping Mode"

Moscow, Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 316-318

Abstract: In earlier articles the authors developed a diffusiophoresis theory for moderately large, nonvolatile aerosol particles whose radius satisfies the condition:

$$0{,}01 \leqslant \lambda/R \leqslant 0{,}03,$$

where $\lambda$ is the mean free path length of gaseous molecules in binary gaseous mixtures. A diffusiophoresis theory was also considered for very large volatile particles. The present article deals with the derivation of a formula for the diffusiophoresis velocity of moderately large volatile particles, with allowance for all factors which are proportional to the Knudsen number, equal to $\lambda/R$. The authors consider a spherical drop consisting of a substance which can be evaporated (or condensed), forming

1/2

USSR

YALAMOV, Yu. I., et al., Doklady Akademii Nauk SSSR, Vol 206, No 2, 1972, pp 316-318

one of the components (for example, the first) of a binary gaseous mixture. Allowance is made for gas slippage along the particle surface.

2/2

USSR

UDC 541.182.2/3

IVCHENKO, I. N., and YALAMOV, Yu. I., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"A Direct Method for Calculating the Thermophoretic Forces Acting on Rather Large Aerosol Particles"

Moscow, Kolloidnyy Zhurnal, Vol 34, Vyp 5, Oct/Nov 72, pp 769-773

Abstract: The system considered is a rather large nonvolatile aerosol particle in a nonuniformly heated gas. The equilibrium of thermal energy and temperature jump at the particle surface determine the temperature gradients within and in the vicinity of the particle. The distribution of velocities within the gas are determined from the Navier-Stokes equation. The coefficient of heat conductivity for a particle can be calculated from irreversible reaction thermodynamics. Using the above equations plus a tensor analysis for the surface tension, an equation is derived describing the movement of aerosol particles in a non-uniformly heated gas. Results derived from this equation are about twice as high as those from a previously published work based strictly on thermodynamic considerations.

1/1

USSR

UDC 541.182.2/.3

DERYAGIN, B. V., YALAMOV, YU. I., and GALOYAN, V. S., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Theory of the Thermophoresis of Moderately Large Volatile Aerosol Particles"

Moscow, Kolloidnyy Zhurnal, Vol 33, No 4, Jul-Aug 71, pp 509-514

Abstract: The article considers a spherical, moderately large volatile aerosol particle placed in a binary gas mixture. The problem is to determine the total force acting on the particle and then, on the basis thereof, the thermophoresis rate, using the hydrodynamic method. The total force acting on the particle is calculated by integrating the total stress tensor along the surface of the particle allowance is made of the jump of the absolute concentration of the volatile component at the boundary of the Knudsen layer at the particle surface. The following expression is obtained for the thermophoresis rate:

$$u_T = -\frac{2\delta\left[K_{s1}+\frac{m_1}{m_2}\left(1+6\frac{c_m\lambda}{R}\right)\right]\varkappa_i D_{12}}{n_0\Phi\left(1+2c_m\frac{\lambda}{R}\right)\left(1+\frac{2K_c\lambda}{R}\right)}(\nabla T)_\infty -$$

1/2

USSR

DERYAGIN, B. V., et al., Kolloidnyy Zhurnal, Vol 33, No 4, Jul-Aug 71, pp 509-514

$$-\frac{2KT_{Ts}v}{T_0\Phi}\left[\varkappa_e+\left(\varkappa_i+\frac{2Lm_1D_{12}\delta}{1+\frac{2K_e\lambda}{R}}\right)\right](\nabla T)_\infty$$

$$\Phi=\left[2\varkappa_e+\left(\varkappa_i+\frac{2Lm_1D_{12}\delta}{1+2K_e\frac{\lambda}{R}}\right)\left(1+\frac{2c_i\lambda}{R}\right)\right]$$

The thermophoresis rate is found to differ significantly from the rate obtained previously by two of the authors (DERYAGIN and YALAMOV) for moderately large nonvolatile aerosol particles. In the absence of volatility the above expression changes to the DERYAGIN-YALAMOV formula for nonvolatile particles.

2/2

USSR

UDC 533.15

IVCHENKO, I. N., and YALAMOV, Yu. I., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Hydrodynamic Method of Calculation of the Velocity of Thermophoresis of Moderately Large Non-volatile Aerosol Particles"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 3, Mar 71, pp 577-582

Abstract: On the basis of an analysis of conditions pertaining to the motion of the gas, a theory of the thermophoresis of moderately large non-volatile aerosol particles was developed on the assumption of gas flow accompanied by sliding. A formula is derived for the velocity of thermophoresis of aerosol particles which expresses the functional dependence of this velocity on coefficients of isothermal and thermal sliding of the gas as well as on that of the temperature change. On the basis of a solution of a linearized Boltzmann equation with an ideal elliptic statistical model of the collision operator, and expression is derived for the velocity of thermal sliding of a gas located above a solid flat wall. Expressions for the coefficients of isothermal sliding and of the temperature change are discussed.

1/1

USSR

UDC 543.226

IVCHENKO, I. N., YALAMOV, Yu. I., and RABINOVICH, Ya. I., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"A Theoretical and Experimental Study of the Thermophoresis of Aerosol Particles at Large Knudsen Numbers"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 3, Mar 71, pp 583-587

Abstract: An expression was derived for the velocity of thermophoresis of small aerosol particles under conditions approaching that of free motion of gas molecules without interference due to the presence of aerosol particles. The expression obtained was in satisfactory agreement with experimental results obtained by B. V. Deryagin and Ya. I. Rabinovich in a study of the thermophoresis of a NaCl aerosol, paraffin oil mist, and tobacco smoke in air under conditions in which the effects of thermal transpiration and gravitational convection were eliminated (Rabinovich, Candidate's Dissertation, Moscow, 1965).

1/1

USSR

UDC 541.182.2/3:539.12.172

YALAMOV, Yu. I., and DERYAGIN, B. V., Institute of Physical Chemistry, Acad. Sc., USSR, Moscow

"Theory of Thermophoresis of Moderately Large and Large Aerosol Particles With Allowance for the Thermal Gas Slip and Temperature Jump of the Surface of Particle"

Moscow, Kolloidnyy Zhurnal, Vol 33, No 2, Mar-Apr 71, pp 294-300

Abstract: In the development of the theory use is made of Deryagin's method based on the calculation of the isothermal heat flow through an "aerosol partition" connecting two gas filled vessels, allowing for the Onsager relationship. The formulas obtained for the thermophoresis rate of moderately large and large aerosol particles depend essentially on the magnitude of the temperature jump at the gas particle interface, being independent of the gas slip velocity caused by the local concentration gradient.

1/1

USSR

UDC: 51

GABOVICH, Ye., CHIZH, A., YALAS, A.

"On the Traveling Salesman Problem in Restricted Areas"

Tr. Vychisl. tsentra. Tartus. un-t (Works of the Computing Center. Tartu University), 1971, vyp. 22, pp 3-24 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V412)

Translation: It is known that the classical problem of the traveling salesman (TS) is a problem in selecting the shortest circuit t passing through n cities (for which the distance matrix $\|c_{ij}\|$ is given). The following generalization of the problem is considered. Let $t = (t_1, t_2, \ldots, t_n)$ be some circuit. Let us call the number

$$w(t) = \max\{c_{t_1 t_2}, c_{t_2 t_3}, \ldots, c_{t_{n-1} t_n}, c_{t_n t_1}\}.$$

the width of the circuit t. The problem of finding the circuit of optimum width is called by the authors the problem of the traveling salesman in restricted areas (TSRA) with matrix $\|c_{ij}\|$. The TSRA is the same kind of natural generalization of the conventional traveling salesman problem as the problem of assignments to restricted areas (see for instance RZh-Mat

1/3

USSR

GABOVICH, Ye. et al., Tr. Vychisl. tsentra Tartus. un-t, 1971, vyp. 22, pp 3-24

1966, 11V249K) is for the conventional assignment problem. The TSRA was first formulated and solved in one special case in a paper by Gilmore and Gomori (RZh-Mat, 1964, 11V262). In a doctoral dissertation, D. Shapiro (RZh-Mat, 1968, 1V422D) proposed an exact method (of the "branches and boundaries" type) suitable for solving both the TS and the TSRA. The maximum number of cities is n = 70 for TSRA problems solved by this method.

The TSRA arises, for instance, in considering the following problem of planning the route for a cycle race. It is known that the route must pass through n preselected cities. It is established for any two cities by which road the cyclists are to travel from the first city to the second (if the route is to be marked out in this order), and by which road they are to travel from the second city to the first (obviously these two paths may be of different lengths). It is required to route the race in such a way that the longest stage will be as short as possible.

A certain method is proposed in § 1 for solving the TSRA. The method is not completely formalized and is intended for solving the TSRA manually (rather than by computer). The authors note that complete formalization of

2/3

USSR

GABOVICH, Ye. et al., Tr. Vychisl. tsentra. Tartus. un-t, 1971, vyp. 22, pp 3-24

the proposed method (probably feasible in principle) is apparently very cumbersome and is scarcely advisable. In § 2 the method is applied to various TSRA problems defined by distance matrices directly known from the literature on the traveling salesman problem. In § 3 a solution is given for six TSRA problems whose matrices are different random-number matrices. The number of cities for the largest matrix is $n = 100$. A certain degree of success is attained in this peper due to 1) utilization of certain advantages of a human operator over a computer (informal thinking); 2) the specific nature of the method which enables almost arbitrary plotting of a path repeatedly beyond a certain point in time. In the final analysis, the authors' experiment shows that the TSRA is accessible to manual solution in the case of fairly large problems. The time of solution for $n \leqslant 57$ varies from a half hour to several hours if the time for preparation of initial data is not taken into account. A problem for $n = 100$ was solved manually in less than 10 hours. Yu. Finkel'shteyn.

3/3

USSR

UDC: 577.1:615.7/9

YALKUT, S. I.

"On the Toxic Properties of Monoethylaniline"

V sb. Gigiyena primeneniya, toksikol. pestitsidov i klinika otravl. (Pesticides -- Sanitary Measures in Using, Toxicology, and the Poison Clinic--collection of works), vyp. 9, Kiev, 1971, pp 360-362 (from RZh-Biologicheskaya Khimiya, No 6, Mar 72, Abstract No 6F2173)

Translation: The $LD_{50}$ of monoethylaniline introduced into the stomach is 290 mg/kg for rats, and 500 mg/kg for mice. Administration to rats of 0.5 of the $LD_{50}$ induces development of normochromic anemia and increases the MetHb concentration in the blood (to 50-60%). In chronic experiments (injection of 1/20 of the $LD_{50}$), there was a reduction in the concentration of Hb, an increase in the concentration of MetHb, and drop in the number of erythrocytes as well as an increase in the number of leucocytes. M. Sh.

1/1

USSR

UDC 621.43.011:533+621.5:533

ZAGREBEL'NAYA, L. I., CHEREPANOV, V. P., and YAL'NITSKIY, L. F.

"Theoretical Study of Gas Parameters in Air-Jet Burners Using Air Preheating"

Samoletostr. i tekhn. vozd. flota. Resp. mezhved. nauchno-tekhn. sb. (Aircraft Construction and the Technical Air Fleet, Republic Interdepartmental Scientific-Technical Collection), Vypusk (Issue), 18, 1970, pp 12-19 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12B448, Authors' Abstract)

Translation: Results of thermodynamic calculations of the temperature of gas in a combustion chamber $T_K$ as affecting the temperature of gas on leaving the jet nozzle $T_a$ and the gas exhaust velocity $W_a$ are presented for the cases when the pressures in the combustion chamber $P_K$ = 5-25 abs atm, the air excess factor $\alpha_T$ = 0.7-1.2, and the degree of preheating $\Delta T_{B03\Delta}$ = 500, 1000, and 2000°. A comparative evaluation is made of the parameters of the burners, using air and oxygen as the oxidant, and also of the air-jet burners using different fuels (gasoline, natural gas, compressed gas, and coking gas). It is concluded that it is possible to use the parameters of the gas in gasoline-air burners with air preheating to characterize air-jet burners using natural, compressed, and coking gases (in the latter case, given several assumptions).

1/1

Acc. Nr.: AM0044956 Ref. Code: UR0000

Yalovega, N. V.

Specific Features of Measurements of Thermophysical Parameters of High-Temperature Power Plants (Spetsifika izmereniy teplofizicheskikh parametrov vysokotemperaturnykh energeticheskikh ustanovok) Moscow, Atomizdat, 1970, 383 pp (SL:1911)

TABLE OF CONTENTS:



1/2

Reel/Frame 19771829

21

AM0044956



The Development of High-temperature power plants and physico-technical experiments in equipment with liquid-metal coolants required the development of special data units for automatic control and thermotechnical regulation...

The book contains systematic data on instruments subjected to full-scale tests...

The book will be of interest to designers and engineers engaged in the development of this new field of engineering.

2/2

19771830

1/2 GC9 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--FINDS OF GOLD IN COASTAL AND ESTUARY SANDS ON THE NORTHWESTERN SHORE OF THE BLACK SEA -U-

AUTHOR-(02)-PELKANOV, YU.A., YALOVENKO, I.P.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 905-8 (MINERAL)

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GOLD, MINERAL, DIAMOND, PROSPECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0554 STEP NO--UR/0020/70/191/004/0905/0908

CIRC ACCESSION NO--AT0126301

UNCLASSIFIED

2/2 0C9 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0126301

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NINE SAMPLES, WEIGHING 7-1800 KG, WERE TAKEN FROM VARIOUS PLACES OF THE TITLE TERRITORY AND STUDIED TO DET. METHODS FOR DETECTION AND PROSPECTING FOR DIAMONDS. AU WAS FOUND IN 7 SAMPLES AMTS. UP TO SEVERAL TENS OF AU GRAINS PER SAMPLE. THE AU FROM VARIOUS PLACES HAD A SIMILAR GRAIN SIZE (0.5-0.5 MM) AND SCARCELY DIFFERED MORPHOL. THE CLASTIC MATERIAL, DELIVERED BY RIVER WATER WAS PROBABLY ONE OF THE SOURCES OF AU, BECAUSE TRACES OF AU WERE DETECTED IN ALLUVIAL DEPOSITS OF DNIESTER AND SOUTHERN BUG RIVERS. THE PRESENCE OF AU IN MOST SAMPLES INDICATED A RATHER MORE WIDELY DISTRIBUTED AU CONTAMINATION THAN AN ACCIDENTAL DISCOVERY. A SPECIAL STUDY OF MARINE, BAY, AND COASTAL MARINE FORMATIONS ON THE NORTHWESTERN SHORES OF THE BLACK SEA IS SUGGESTED TO DET. THE AURIFEROUS POTENTIALS OF THE TERRITORY. FACILITY: INST. MINER. RESUR., SIMFEROPOL. USSR.

UNCLASSIFIED

Automatic Control Instruments & Systems

USSR

UDC 62-551.454

YALYSHEV, A. U., LEVINSON, B. A.

"Method of Constructing Electrical Analog Proportional-Integral-Differential Control Devices with Mutually Independent Dynamic Parameter Tuning Devices"

Pribory i Sistemy Upravleniya No. 7, 1970, pp 23-27

Abstract: Electrical analog control devices forming the command signal on the basis of the standard proportional-integral-differential (PID) rule are generally based on one operational amplifier with a high impedance input. Feedback loops contain passive RC-quadrupoles with ID links. Since these links are not detecting links for interrelated RC circuits, the problem of creating analog regulating devices with channels for adjusting the proportional, integral, and differential components which are invariant with respect to each other has not yet been solved. The solution of the problem of providing independence of the channels requires further improvement of the principles of design of analog control devices based on operational amplifiers with RC feedback. Structural diagrams of



APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203620003-3"

USSR

YALYSHEV, A. U., LEVINSON, B. A., Pribory i Sistemy Upravleniya, No. 7, 1970, pp 23-27

analog control devices based on an operational amplifier with the minimum number of controlled R and C feedback elements are presented. The primary distinguishing feature of these devices is that the input signal is fed to the feedback loop both through the output circuit of the operational amplifier and through the R and C elements not connected to the adding point, and the regulating device of the resistors and condensers in the feedback loop are rigidly connected to each other in pairs. The devices are analyzed to show that the introduction of additional coupling of the input signal, potentiometric bridges with a compensation channel, and the doubling of the adjustment of the R and C elements are effective means of producing broad-range, independent adjustment of dynamic parameters. This method has been used in the development of a number of regulating devices and can be practically used in planning new PID regulators based on electrical, pneumatic, and hydraulic operational amplifiers.

USSR

UDC 621.359.3

KULINICH, V. I., BOLOSYUK, YU. M., and YALYUSHEV, N. I.

"The Mechanism for Electrolysis in a Two Layer Bath for a Series of Ions"

Tr. Novocherkas. politekh. in-ta (Works of the Novocherkas. Polytechnical Institute ), 259, 1974, pp 107-110 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L272)

Translation: The elemental electrochemical process was considered as an example of the electrocrystallization of metallic powders in a two layer bath. It is associated with the transfer of one or several electrons from the electrode at the interface surface. The possibility of a tunnelling mechanism for the reaction was substantiated. The calculated value for the tunnelling coefficient D was 0,53 and provided current flow close to the experimental value.

1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF FORCE FACTORS ON THE DENSITY OF CERAMICS DURING VIBRATION IMPACT COMPACTION -U-

AUTHOR--YAM, V.M.

COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(2), 9-12

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--VIBRATION EFFECT, CERAMIC MATERIAL, POWDER METAL COMPACTION, COMPACTION EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0889 STEP NO--UR/0131/70/035/002/0009/0012

CIRC ACCESSION NO--AP0118058

UNCLASSIFIED

2/2 030 UNCLASSIFIED

CIRC ACCESSION NO--AP0118058 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SAMPLES OF CERAMIC BLOCKS WERE COMPACTED UNDER PRESSURE AND A VIBRATING EFFECT ON THE FRAME INCORPORATING THE PRESSURE EQUIPMENT. ESTABLISHED RANGES OF STABLE VIBRATORY ACTION WITH RANGES OF APPLIED PRESSURE AND DS. OBTAINABLE IS PRESENTED, THE MAX. D. DEPENDING PARTICULARLY ON THE PRESSURE AT FIXED AMPLITUDE. FACILITY: VSES. INST. OGNEUPOR., LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 669.017:539.261

YAMALEYEV, K. M.

"Diffuse Scattering of X-Rays by Aged Alloys"

Moscow, Diffuznoye Rasseyaniye Rentgenovskikh Luchey Stareyushchimi Splavami, Izd-vo Nauka, Moscow, 1973, 99 pp

Translation of Annotation. This monograph is devoted to several questions in the theory of diffuse scattering of x-rays by aged alloys and to the methods of analyzing the diffuse diffraction effects.

In the theoretical part the author examines diffuse scattering of x-rays in alloys with heterogeneities of the Guinier-Preston zones, with particles of the precipitation phase, with modulated structure, elastically deformed regions, etcetera. In the methodical part he discusses analytical and graphic methods for computing the diffuse diffraction effects and several methods of small-angle diffuse scattering of x-rays.

1/6

USSR

YAMALEYEV, K. M., Diffuznoye Rasseyaniye Rentgenovskikh Luchey Stareyushchimi Splavami, Izd-vo Nauka, Moscow, 1973, 99 pp

The book is designed for scientists and technicians specializing in the areas of x-ray structural analysis, solid state physics, methods of investigating the structure of real crystals; it may also be useful for graduate students and students of the upper levels of technical institutes. (41 illustrations and 60 bibliographic references)

CONTENTS



2/6

USSR

YAMALEYEV, K. M., Diffuznoye Rasseyaniye Rentgenovskikh Luchey Stareyushchimi Splavami, Izd-vo Nauka, Moscow, 1973, 99 pp



3/6

USSR

YAMALEYEV, K. M., Diffuznoye Rasseyaniye Rentgenovskikh Luchey Stareyushchimi Splavami, Izd-vo Nauka, Moscow, 1973, 99 pp

USSR

YAMALEYEV, K. M., Diffuznoye Rasseyaniye Rentgenovskikh Luchey Stareyushchimi Splavami, Izd-vo Nauka, Moscow, 1973, 99 pp



5/6

USSR

YAMALEYEV, K. M., Diffuznoye Rasseyaniye Rentgenovskikh Luchey Stareyushchimi Splavami, Izd-vo Nauka, Moscow, 1973, 99 pp



6/6

USSR

UDC 547.26'117:541.49

PUVOVIK, A. N., MURATOVA, A. A., MEDVEDEVA, M. D., and YAMALIYEVA, L. N., Kazan State University imeni V. L. Ul'yanova-Lenina

"Study of the Reaction of Trialkyl Phosphites With Ten Alkyl Halides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2402-2407

Abstract: A study was made of the reaction triethyl-, tri-normal-propyl-, and tri-normal-butyl phosphites with the monoethyl-, diethyl-, and triethyl-halides of tin, having the general formula $(C_2H_5)_n SnX_{4-n}$ for X = Cl, Br, I and n = 1, 2, 3. The reaction was followed by differential thermal analysis (DTA) in conjunction with simultaneous measurements of the electrical conductivity. Reactions were carried out in anhydrous pentane under dry $CO_2$ at -10 to -20°C. Complexes of two types were formed, $[(RO)_3P]_2 \cdot SnX_3C_2H_5$ and $[(RO)_3P] \cdot SnX_3C_2H_5$. Both the temperature of the initiation of the thermal effect and the temperature of maximum thermal effect decreased in the order chlorine, bromine, and iodine. Both the reactivity and the acceptor strength decrease in the above order for $SnX_4$ and $C_2H_5SnCl_3$; however, the order is

1/2

USSR

- PUVOVIK, A. N., et al., Zhurnal Obshchey Khimii, Vol 42(104), Vyp 11, 1972, pp 2402-2407

reversed for the compounds $(C_2H_5)_2SnCl_2$ and $(C_2H_5)_3SnCl$. The authors explain this difference as being due to different reaction mechanisms. IR data and NMR data using Cl35 are also given.

2/2

USSR

UDC: 621.378.9:533.9.02

YAMANAKA, S., YAMANAKA, T., KANG, H., SASAKI, T., YOSHIDA, K., ~~UEDA, K.~~, HONGYO, M., WAKI, M., Electrical Engineering Department, Osaka University, Institute of Plasma Physics, Nagoya University, Japan

"Plasma Generation and Heating by Lasers"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 45-52

Abstract: The paper gives the results of research on destruction of laser glasses by powerful radiative emission, on using liquid lasers as light amplifiers, and also on using powerful lasers for heating a plasma. A method is proposed for high-speed measurements of plasma temperature and density based on the Thomson scattering of light. A complex structure is detected in the central ion peak in the scattered radiation spectrum. The recording equipment shows twenty neutrons occurring in a burst. [The paper is an abbreviated version of an article presented to the editors by the organizational committee of the International

1/2

USSR

YAMANAKA, S. et al., Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 45-52

Conference on Laser-Produced Plasma held in Moscow in 1970. Translation by V. A. Gribkov]. Six illustrations, bibliography of ten titles.

2/2

USSR

UDC: 621.378.9:533.9.02

YAMANAKA, S., YAMANAKA, T., KANG, H., SASAKI, T., YOSHIDA, K., UEDA, K., HONGYO, M., WAKI, M., Electrical Engineering Department, Osaka University, Institute of Plasma Physics, Nagoya University, Japan

"Plasma Generation and Heating by Lasers"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 45-52

Abstract: The paper gives the results of research on destruction of laser glasses by powerful radiative emission, on using liquid lasers as light amplifiers, and also on using powerful lasers for heating a plasma. A method is proposed for high-speed measurements of plasma temperature and density based on the Thomson scattering of light. A complex structure is detected in the central ion peak in the scattered radiation spectrum. The recording equipment shows twenty neutrons occurring in a burst. [The paper is an abbreviated version of an article presented to the editors by the organizational committee of the International

1/2

USSR

YAMANAKA, S. et al., Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 45-52

Conference on Laser-Produced Plasma held in Moscow in 1970. Translation by V. A. Gribkov]. Six illustrations, bibliography of ten titles.

2/2

Reliability Theory

USSR

YAMANOV, SERGEY ANDREYEVICH

"New Electrical Insulating Materials and the Problem of Reliability" (Novyye Elektroizolyatsionnyye Materialy i Problema Nadezhnosti), Moscow, "Energiya," 1971, 11,000 copies, 152 pages

Abstract: The book contains statistical data and an analysis of the reasons for failure of electrical machines and equipment, and radio equipment operating in difficult operating conditions. Measures for improving the reliability of electrical equipment and the role of electrical materials are examined.

New polymers possessing high electrical and mechanical properties, which are resistant to heat and moisture are examined. Recommendations for their use in electrical and radio equipment are given. Methods of determining aging, thermal stability, durability and calculations of the reliability of electrical insulation are presented. The effect of moisture upon electrical equipment and radio components and the relation of the electrical characteristics upon the time exposure of a moist atmosphere, as well as the basic problems of tropical protection and methods of protecting against moisture are examined.

The book is intended for builders of electrical equipment and specialists of electrical insulation.

USSR

YAMANOV, SERGEY ANDREYEVICH, "New Electrical Insulating Materials and the Problem of Reliability" (Novyye Elektroizolyatsionnyye Materialy i Problema Nadezhnosti), Moscow, "Energiya," 1971, 11,000 copies, 152 pages

The book has numerous figures and tables and 72 citations. The chapter headings are as follows:



2/2

USSR UDC: 621.396.6:621.315.6

YAMANOV, S. A.

"Chemistry and Radio Materials. Textbook for College Students Majoring in Radio Engineering"

Khimiya i radiomaterialy. Uchebnik dlya stud. radiotekhn. spetsial'nostey vuzov (cf. English above), Moscow, "Vysah. shkola", 1970, 400 pp, ill. 84 kop. (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V452 K)

Translation: The book contains sections on: quantum electronic fundamentals of the periodic system of elements; theory of the chemical bond and molecular structure, electrical properties of molecules and methods of calculating dipole moments; dependence of electrical and other properties on the chemical make-up and structure of molecules and on external factors (electric field, radiative emission, temperature, humidity, pressure, etc.). The material in the third section of the textbook -- radio equipment components -- is based on the contents of the preceding chapters, i. e. on utilizing the properties of materials in the design of radio components, and on the physicochemical processes which lie at the base of the technology of making the components. The comparatively small volume of the textbook has made it necessary to present the contents in summary form without derivations of formulas, and in

USSR

YAMANOV, S. A., Khimiya i radiomaterialy. Uchebnik dlya stud. radiotekhn. spetsial'nostey vuzov, Moscow, "Vyssh. shkola", 1970

many instances giving only the general concepts of processes and materials, although the author feels that the mathematical derivations of the formulas would aid in better mastery. In addition to the physicochemical and electrophysical fundamentals of the science of electrical materials, the text also gives some reference data on the properties of materials, their dependence on various factors, and the structural and technological parameters of components which can be utilized by the students in exercizes and in class and examination projects. Ye. M.

2/2

7527

CSO: 1860-W

- END -

USSR

UDC 621.382.2

GONCHAROV, V. N., KLYUCHNIKOV, V. N., KRYLOV, L. N., LAVRISHIN, Yu. A., LONCHIN, M. A., SEREZHKIN, Yu. N., UCHAYKIN, I. G., and YAMASHKIN, Yu. M.

"Role of Microplasma Phenomena in Determining the Properties of Silicon Avalanche Rectifiers"

Uch. zap. Mordovsk. un-t (Scientific Notes of Mordovskiy University), 1970, Issue 82, pp 3-20 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8B195)

Translation: The effect of microplasma phenomena on the characteristics of avalanche rectifiers is considered. A model of the microplasma is presented and the reasons for formation of microplasm are considered. The distribution of microplasm in avalanche rectifiers is presented for the area of the p-n junction and for breakdown voltages. Means are considered for an increase of the breakdown energy of avalanche rectifiers. Summary.

1/1

USSR

UDC 621.385:530.145.6:62

YAMBAYEV, KH. K.

"Results of Studies of a Laser Aligner"

Proyektirovaniye -- V sb. (Design -- collection of works), vyp. 2, Moscow, 1970, pp 92-97 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D419)

Translation: The basic results of studying a laser interference aligner developed on the basis of the characteristics of focusing a coherent monochromatic light beam by zoned plates are investigated. There is a brief discussion of the research procedure and the range measurements of various sets of equipment. When investigating individual error sources of the aligner, basic attention was given to the problems of formation of a high-quality image by the zoned plates and the effect of rotating a one-dimensional plate around the axis of symmetry of the Fresnel zones.

1/1

Radiobiology

UDC 614.73:621.311.25

USSR

KOZLOV, V. M., ZYKOVA, A. S., ZHAKOV, Yu. A., and YAMBROVSKIY, Ya. M.

"Radiation Safety of the Population Living in the Vicinity of an Atomic Power Plant"

Moscow, Gigiyena i Sanitariya, No 4, 1970, pp 54-56

Abstract: Due to careful treatment of waste gases and liquids, installation of special facilities for long-term storage of highly active liquid and solid wastes, and creation of an extensive health zone, the Beloyarsk (uranium-graphite thermal reactor) and Novovoronezh (water-cooled thermal reactor) plants have not increased radioactivity in the atmosphere and waters of the area during the three years that they have been in operation. The amount of $Sr^{90}$ and $Cs^{137}$ in locally produced foods (potatoes, cabbage, milk, etc.) does not exceed the average levels for the country as a whole.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--RADIATION SAFETY OF THE POPULATION IN THE DISTRICT OF AN ATOMIC POWER PLANT -U-

AUTHOR--KOZLOV, V.M., ZYKOVA, A.S., ZHAKOV, YU.A., YAMBROVSKIY, YA.M.

COUNTRY OF INFO--USSR

SOURCE--GIGIYENA I SANITARIYA, 1970, NR 4, PP 54-56

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NUCLEAR SAFETY, NUCLEAR POWER PLANT, INDUSTRIAL HYGIENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1679 STEP NO--UR/0240/70/000/004/0054/0056

CIRC ACCESSION NO--AP0101734

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0101734

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATOMIC POWER PLANTS BELONG TO RAPIDLY DEVELOPING BRANCHES OF INDUSTRIES. CONSEQUENTLY A STUDY OF RADIATION SAFETY OF THE POPULATION IN THE DISTRICT OF AN ATOMIC POWER PLANT (APP) IS AN IMPORTANT HYGIENIC PROBLEM. THE PAPER CONTAINS INVESTIGATION DATA ON THE NOVOVORONEZHSKAYA AND BELOYARSKAYA APP, PROVING THE LATTER TO HAVE NO EFFECT ON THE SANITARY RADIATION CONDITION OF THE DISTRICT OF THEIR LOCATION. ON THE BASIS OF THESE DATA IT IS PERMITTED TO USE SANITARY PROTECTION ZONE AROUND APP FOR AGRICULTURAL PURPOSES.

UNCLASSIFIED

USSR

UDC 547.242

GATILOV, Yu. F., YAMBUSHEV, F. D., TENISHEVA, N. Kh., Kazan' Pedagogical Institute

"The Effect of Substituents in the Aromatic Nucleus on the Optical Activity of Tertiary Arsines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2273-2275

Abstract: A series of ethyl-o-, m-, and p-bromophenyl-p-tolyl, ethyl-o-, m-, and p-bromophenyl-p-carboxyphenylatsines has been synthesized and their properties were investigated; separation of optically active isomers has been achieved and their structures were proven by IR- and PMR spectroscopical analysis. It has been shown that the optical activity of tertiary dialkylarylarsines is closely related to the position of the substituent in the neighboring aromatic nucleus. Its value decreases going from ortho to meta to para derivatives.

1/1

USSR

UDC 547.242

GATILOV, YU. F., and YAMBUSHEV, F. D., Kazan' Pedagogical Institute

"Synthesis of Some Asymmetric Arsines and Their Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 5, May 73, pp. 1132-1135

Abstract: Reaction of a Grignard reagent prepared from magnesium and o-dibromobenzene with ethyl-p-tolylchloroarsine gave ethyl-o-bromophenyl-p-tolylarsine which was oxidized with aqueous potassium permanganate to the carboxy derivative of arsine oxide and finally reduced with $SO_2$ in HCl to ethyl-o-bromophenyl-p-carboxyphenylarsine. Using quinine, this product was resolved into optically active antipodes. The optically active isomers reacted with sulfur in benzene to yield optically active sulfides. The original optical isomers could also be oxidized with $NO_2$ at -15° to the oxide enantiomers.

1/1

USSR

UDC 547.242

GATILOV, Yu. F., IONOV, L. B., and YAMBUSHEV, P. D., Kazan' State Pedagogical Institute

"Effect of the Substituents in an Aromatic Nucleus on the Optical Activity of Alkyldiarylarsines"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 3, Mar 71, pp 570-572

Abstract: Novel tertiary arsines were synthesized and separated into optical isomers by optically active quinine. To a solution of 39 g potassium permanganate in 500 ml water, 25 g of ethylphenyl-m-tolylarsine was added and heated for 20 hrs at 90°. To the solution 2 ml alcohol was added, the solution was filtered, and the filtrate acidified. The crude oxide was then reduced with $SO_2$ for 2 hours to yield racemic ethylphenyl-m-carboxyphenylarsine, m.p. 121°. Pure optical isomers were obtained by treatment with optically active quinine. It was shown that introduction of substituents in the aromatic nucleus leads to lower optical activity.

1/1

USSR

UDC 547.242

GATILOV, Yu. F., YAMBUSHEV, F. E., and TENISHEVA, N. Kh., Kazan' Pedagogic Institute, Kazan'

"Synthesis and Properties of Alkylarylaminophenylarsines and Their Derivatives"

Leningrad, Zhurnal Obshchey Khimii, Vol 43, No 11, Nov 73, pp 2405-2407

Abstract: By reacting in a benzene solution ethyl-p-tolylchloroarsine and o-, m-, or p-aminobromobenzene with Na, the corresponding alkylarylaminophenylarsines $Et(p\text{-}MeC_6H_4)AsC_6H_4NH_2$ (I) were prepared. The diarsines $Et(p\text{-}MeC_6H_4)AsAs(C_6H_4Me\text{-}p)Et$ and diaminobiphenyls $H_2NC_6H_4C_6H_4NH_2$ formed as byproducts. Compounds I were dark-red liquids with b. p. 90° (5 mm), 127° (5 mm), and 140° (5 mm) for the o-, m-, and p-amino derivative, respectively. Upon the reaction with $H^+X^-$ ($X^- = Cl^-, NO_3^-, HSO_4^-$), compounds I formed the salts $/Et(p\text{-}MeC_6H_4)AsC_6H_4NH_3/^+X^-$

1/1

USSR

UDC 551.46.087.08

YAMKOVOY, V. A., OVANESOV, O. G., LATYSHEVA, G. I., STRUTSINSKIY, A. V., and MATVEYEV, V. A.

"A Marine Water Temperature Meter"

Kiev, Vestn. Kiev. politekhn. in-ta. Ser. priboroctr. (Journal of the Kiev Polytechnic Institute-Instrument Engineering Series) No 3, 1972, pp 34-35 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 1, 1973, Abstract No 1.32.723 by V. S. Krasnova)

Translation: A short description of an instrument for measuring the temperature of marine water is presented, whose function is based on the transformation of temperature into an electrical signal. The average temperature is measured by the unbalance current of a bridge using a microammeter M=1690+A, first class, with current limits 0-100 microamp, as an indicator. The range of temperature from -2°C to +35°C is broken down into four subranges of 10°C each. The voltage of the feeding measurement circuit is 9.86 volts constant current. The instrument assures the measurement of temperature in each range with an accuracy of $\pm$ 0.1°C. The maximum endurance time of the monitor for a fixed level and a discrete measurement is 4-5 seconds. (1 illustration, English resume)

1/1

USSR

UDC: 621.318.4

YAMNIKOV, Yu. V., DENISOV, V. I.

"Some Problems in Optimum Planning of the Design Parameters of Inductance Coils Using Statistical Experiment Methods"

V sb. Teoriya i praktika ispol'z. sredstv tekhn. kibernetiki. Kn. 1 (Theory and Practice in Using the Facilities of Technical Cybernetics. Book 1-- collection of works), Novosibirsk, 1970(1971), pp 176-182 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V434)

Translation: The authors discuss the use of the statistical theory of planning of experiments for determining the optimum wire diameter for a coil. The effectiveness of the proposed method of calculation is confirmed by the design of a number of devices. Bibliography of 6 titles. N. S.

1/1

USSR UDC 621.762.002.5(088.8)

ARON, P. M., YAMNITSKIY, E. L., KUMMING, S. YA., and ISTOMIN, V. A.

"Apparatus for Treatment of Powdered Materials"

Ussr Authors' Certificate No 259690, Cl. 81e, 11; 21g 31/03. (B 65 j, H 01 F), filed 26 Aug 68, published 2 Jun 70 (from Metallurgiya, No 3, Mar 71, Abstract No 3G472 by O. Padalko)

Translation: The initial charge for thermochemical production of ferrite powder is delivered from a hopper onto a rotating disk and travels on it to the reaction chamber. An ignition device in the chamber submerges into the charge layer and ignites it. When the combustion front goes beyond the confines of the chamber, the drive switches on, and a new charge batch moves into the chamber. Removal of the powder leaving the chamber is effected by a scraper.

1/1

AN0016998

UR9001

FROM: FBIS Daily Report, Soviet Union, 15 Jan 1960, Vol III, Nr 10, pp C1-C2

USSR GEOLOGICAL RESEARCH INSTITUTES NEED IMPROVEMENT

Moscow ECONOMIC GAZETTE No 2, Jan 70 pp 6-7 E

[Article by CPSU Central Committee Heavy Industry Section Sector Chief A. Yamnov: "Forecasts and Discoveries--Certain Questions of the Search for and Exploration of Natural Resources"]

[Excerpts] An Important Condition of New Successes

For the successful solution of major scientific and production problems the time has come for a bolder transfer to the most progressive new forms of organizing scientific research work, forms which have justified themselves in practice. It is necessary to strengthen the direct link between science and practice and accelerate the introduction of scientific achievements into production. The USSR Ministry of Geology and its scientific research organizations still have much to do to implement the resolution of the CPSU Central Committee and USSR Council of Ministers "On measures to increase the efficiency of scientific organizations' work and accelerate utilization in the national economy of achievements of science and technology."

19600135

AN0016998

In many cases the topics formulated in a number of scientific research institutes are divorced from the tasks facing production organizations. Unjustifiable parallelism and duplication exists in the work of institutes. Subject directions are frequently determined not on the basis of the demands of production, but on the basis of the presence of some specialists or others and their personal plans.

The efficiency of the geological institutes' work is calculated on the basis of conditional annual savings (this is loosely calculated in the institutes themselves) or, as is most frequently the case, by the amount of published work. Here collectives of some major institutes have remained from participating in the solution of a number of problems of priority national economic significance. For example, the All-Union Scientific Research Geological Institute--one of the oldest scientific establishments in the country--has until recently practically ignored mineral and raw material problems (for example, the geology of bauxites, the natural laws of their distribution over the country's territory, and the prospects of discovering deposits under various geological conditions).

In turn, leaders of geological production organizations rarely and imprecisely establish specific matters for scientific research institutes, often resorting to the general opinion that, "science is poorly assisting production." The USSR Ministry of Geology is not displaying sufficient conviction in confirming institutes' subject plans and is not making the necessary corrections to these.

2/5

19600136

AN0016998

The practice of forming subject groups for resolving various problems of a scientific and production nature has become widespread in recent years in the USSR Ministry of Geology's production exploration organizations. There is now a total of approximately 2,900 such groups, in which more than 11,000 specialists are engaged. Their topics frequently duplicate the work of the scientific research institutes and laboratories and are poorly coordinated, and the creation of new groups is outside the sphere of influence of the USSR Ministry of Geology.

If one considers the fact that more than 30,000 scientific research institutes take part in their operation, the excess number of subject groups (and their number is growing) is unjustifiable.

The ministry should utilize such a progressive new form as the scientific and production combine, which has recently become widespread in some industrial branches. It is possible to create such combines on the basis of the presently existing geological administrations, incorporating the corresponding scientific research institutes and laboratories within them.

In this case the whole collective of scientific workers and production organizations would be able to concentrate on solving a specific problem important to the national economy. The questions of concerning and coordinating plans between the scientific and production organizations would no longer arise. The scientific collectives' proposals, forecasts, and recommendations would be rapidly utilized by the production

3/5

19600137

workers and the results of exploratory work would be generalized and analyzed by the scientists. The form of the scientific and production combine is most applicable to geology; for the very process of the production of geological exploratory work is unthinkable without a scientific generalization of the material or a creative approach to its analysis.

The government recently adopted a USSR Ministry of Geology proposal on transferring to the republican geological organs a number of regional scientific institutes which were previously directed subordinated to the ministry. For example, the West Siberian Petroluem Scientific Research Geological Exploratory Institute, which is located in Tyumen, has come under the jurisdiction of the Main Tyumen Geological Production Administration. However, the USSR Ministry of Geology as yet has not created a single scientific and production combine, limiting itself to merely transferring institutes to subordination to other organs.

Our country's territory is so large and variegated in its geological structure that we have the conditions to form deposits of practically every type of useful mineral. Massive factual material has been accumulated, and its processing will provide the opportunity to conduct extensive theoretical generalizations and submit bold new forecasts.

Soviet geologists, having created a powerful raw material base for the development of the national economy, have proved that both in theoretical questions and in the resolution of specific tasks, the leading place in world science and practice rightly

belongs to them. We have fine specialists, advanced methods of conducting geological exploratory work and the necessary technical means.

The USSR Ministry of Geology should define the main directions in the work of scientific and production collectives, concentrate their efforts on the fulfillment of the primary tasks, and more rapidly implement the bold forecasts of the leading scientists. Such conditions will not only insure discovery of individual deposits, but a purposeful seach for these in those regions where they are most necessary for rapidly developing industry.

The many-thousand-strong collective of geologists and specialists from scientific establishments and geological production organizations, together with all the workers, engineers, and technicians engaged in exploring the depths of the earth, is capable of successfully resolving these tasks.



5/5

USSR

UDC 547.717.466.07

YAMONTAITE, A. A., KRASIL'NIKOVA, G. K., KIL'DISHEVA, O. V., and KNUNYANTS, I. L., Institute of Biochemistry, Acad. Sc. Litvanian SSR Vil'nyus

"Synthesis of Some O,O-Diethyl-S-( $\beta$ -Acylaminoethyl)-dithiophosphates"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 72, pp 479-482

Abstract: Ethyleneimides of N-phtalyl-D,L-valine, -glycine, -D,L-alanine, N-carbobenzoxy-D,L-valine, N-benzoyl-D,L-leucine, $\gamma$-methyl ether of N-carbobenzoxy-L-glutamic acid, and monomethyl ester of succinic acid were synthesized and reacted with O,O-diethyldithiophosphoric acid in methanol to yield respective O,O-diethyl-S-( $\beta$ -acylaminoethyl)-dithiophosphates. All of these compounds exhibited intensive doublets at 655-660 $cm^{-1}$ in their IR spectra, indicating the presence of the $O\diagdown P{=}S$ / $O\diagup S\text{-}C$ grouping. Synthesis of $\beta$-chloroethylamides of N-phtalyl-D,L-valine, m.p. 131-132°C, N-acetyl-D,L-valine, M.p. 175-177°C, and monomethyl ester of succinic acid, b.p. 141-142/1.5 mm, $n_D^{20}$ 1.4854, $d_4^{20}$ 1.2480, are also reported.

1/1

Acc. Nr: AP0049801 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: 4R0138

101610r Establishment of durability norms for rubber goods in control tests. Klitenik, G. S.; Yamova, L. P. (Sverdlovsk. Filial Nauch.-Issled. Inst. Rezin. Prom., Sverdlovsk, USSR). *Kauch. Rezina* 1970, 29(1), 34-7 (Russ). Correlations were obtained between fatigue testing of rubber tracks of tracked vehicles and the actual field performance. The statistical anal. of the testing results showed that 409,000 double bending cycles is sufficient to det. whether a batch of tracks can last 10,000 km in service.

CPJR

REEL/FRAME
19801723

USSR

VITTIKH, V. A., SOYFER, V. A., YAMOVICH, A. A.

"Compression of Data in Experimental Studies of Physical Fields"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 6, pp 61-66 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V311, by the authors).

Translation: This article studies an approach to the problem of data compression in experimental studies of physical fields represented by exponential functions of two variables, using methods of adaptive discretization. Means are indicated for realization of adaptive discretization algorithms, and estimates are constructed of the expansions of these fields under adaptive noise conditions. The relationship of the problems of data compression with the physics of the processes studied is emphasized, increasing the effectiveness of compression.

1/1

USSR

DOROSHUK, A. P., and YAMPOLETS, N. G. UDC 621.893

"The Manufacture of Bushings With the Use of a Metal-Fluoroplast Band"

Moscow, Mashinostroitel', No 9, Sep 73, pp 23-24

Abstract: The industrial production of metal-fluoroplast materials has been mastered at the Klimovsk Machinebuilding Plant. Metal-fluoroplast has a 08KP steel base which is covered with a layer of spherical particles of high-stannous O-10 bronze. At present, screwed bushings, 10-55 mm in diam., are produced from metal-fluoroplast bands by the stamping method. The technological production process of metal-fluoroplast bushings, 70-120 mm in diam., at the Scientific Research Institute of Hoisting and Conveying Installations is described by reference to illustrated individual procedures. Bushings and linings for heavy loaded friction nodes, produced with the use of self-lubricating metal-fluoroplast materials, are shown. An experimental set of parts produced with the use of metal-fluoroplast is now successfully tested in friction modes of crane conveyers at Zhdanov Metallurgical Plant imeni Il'yich.

1/1

USSR

UDC 612.273-014.33-015.33

MEYERSON, F. Z., POKOYNITSKIY, V. D., and YAMPOL'SKAYA, B. A., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Role of the Biogensis of Mitochondria in the Adaptation of the Organism to Altitude Hypoxia"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 4, 1972, pp 973-976

Abstract: A study was conducted of the synthesis of DNA, RNA, and protein in mitochondria and nucleic of the mycocardium in rats subjected to intermittent hypoxia produced by placing the animals for 6 hrs per day during 40 days into a chamber with a pressure corresponding to an elevation of 7,000 m. $^{3}$H-Thymidine, $^{14}$C-orotic acid, $^{14}$C-lysine, $^{14}$C-alanine, and $^{14}$C-methionine were applied in studies of the biosynthesis. These compounds were injected intraperitoneally to the animals. As a result of adaptation to hypoxia, the rate of synthesis of DNA, RNA, and protein (as indicated by the incorporation of thymidine, orotic acid, and the amino acids, respectively) in mitochondria and of RNA and protein in cell nuclei increased. Activation of the synthesis of these substances was also observed after stressing of the organism by exposure to cold and as a result of physical effort; it is due in every instance to a shortage of macroorgic substances, specifically

1/2

USSR

MEYERSON, F. Z., et al., Doklady Akademii Nauk SSSRm Vol 203, No 4, 1972, pp 973-976

ATP. Offsetting of this shortage always takes place by activation of the biogenesis of mitochondria and an increase in apparatus of mitochondria involving accelerated synthesis in them of DNA that forms genetic matrices arises in response to a deficiency of energy and constitutes a general mechanism of long-range adaptation of the organism tothe environment. (Submitted by Academician V. V. Parin, 4 Apr 71)

2/2

Electrochemistry

UDC 541.13

USSR

MISYUK, E. G., DAVTYAN, O. K., and YAMPOL'SKAYA, L. M., Odessa State University imeni I. I. Mechnikov, Odessa, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Mechanism and Kinetics of Current-Forming Processes in the Electrochemical Combustion of Gases. XII. Relation Between the Electrochemical Activity and the Magnitude of the Active Surface of Electrodes Activated by the Introduction of Lithium and Potassium"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 468-471

Abstract: It was established in earlier work (Misyuk and Davtyan, Zh. Fiz. Khim. 44, 127, 1970) that electrodes activated with LiOH and then with KOH had an activity that varied with the temperature of activation. Experiments conducted in this instance showed that with increasing temperatures of activation with LiOH the maximum of distribution of the pore surface in relation to the pore radii was displaced towards smaller radii because $Li_2O$ penetrated more deeply into the metal lattice. For Ni electrodes activated with LiOH in the 700-900° range and then with KOH at 400°, the magnitude of the specific active surface of the electrodes passed through a maximum on activation with LiOH at 800°, while the electrochemical activity

1/2

USSR

MISYUK, E. G., et al., Zhurnal Fizicheskoy khimii, Vol 44, No 2, Feb 70, pp 468-471

decreased steadily with increasing temperatures of LiOH activation. This was due to the fact that the stability of surface active centers, as distinguished from that of intracrystalline centers, decreased with increasing temperatures, so that their number and the surface concentration of $Li^+$ and $K^+$ ions decreased as the temperature of activation increased from 700 to 900°.

2/2

1/2 033 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--MECHANISM AND KINETICS OF CURRENT GENERATING PROCESSES OF THE ELECTROCHEMICAL COMBUSTION OF GASES. XII. ELECTROCHEMICAL ACTIVITY AS

AUTHOR-(03)-MISYUK, E.G., DAVTYAN, O.K., YAMPOLSKAYA, I.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 468-71

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTROCHEMICAL COMBUSTION, POROSITY, ELECTRODE DESIGN, SURFACE PROPERTY, ACTIVITY COEFFICIENT, LITHIUM, POTASSIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0859

STEP NO--UR/0076/70/044/002/0468/0471

CIRC ACCESSION NO--AP0104295

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--02OCT70

2/2 033

CIRC ACCESSION NO--AP0104295

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY OF THE POROUS STRUCTURE AND ELECTROCHEM. ACTIVITY OF NI ELECTRODES, WHICH HAD BEEN ACTIVATED BY 2 BRIEF TREATMENTS WITH HYDRATED OXIDES (OF LI AT 700, 800, AND 900DEGREES FOLLOWED BY THAT OF K AT 400DEGREES) SHOWED THAT AT A GIVEN ACTIVATION TEMP. THE ELECTROCHEM. ACTIVITY WAS PROPORTIOANL TO THE MAGNITUDE OF THE ACTIVE SURFACE. THE MAX. VALUE OF ACTIVE SURFACE WAS VIRTUALLY IDENTICAL WITH THE MAX. DISTRIBUTION OF SURFACE PORES ACCORDING TO THEIR RADII. TREATMENT AT 800DEGREES GAVE THE MAX. ELECTROCHEM. ACTIVITY.

1/6 016 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--IS IT POSSIBLE TO CONTROL MEMORY -U-

AUTHOR--YAMPOLSAKYA, N.

COUNTRY OF INFO--USSR

SOURCE--YEREVAN, KOMMUNIST, 23 MAY 70, P 3

DATE PUBLISHED--23MAY70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--HUMAN MEMORY, EXPERIMENTAL PSYCHOLOGY, CONDITIONED REFLEC, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605037/C11 STEP NO--UR/9005/70/000/000/0003/0003

CIRC ACCESSION NO--AN0142453

UNCLASSIFIED

2/8 016 UNCLASSIFIED PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AN0142453
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO MEMORIZE IRREGULAR VERBS IN THE ENGLISH LANGUAGE, A PERSON WITH NORMAL CAPABILITIES HAS TO REPEAT THEM SEVERAL TIMES. BUT PUSHKIN'S BEAUTIFUL LINES "I REMEMBER THE WONDERFUL MOMENT WHEN YOU APPEARED BEFORE ME" REMAIN IN ONE'S MEMORY FROM THE FIRST. WHY? WHY IS A MAN WHO WAS FRIGHTENED BY A SHORT IN HIS CHILDHOOD SCARED TO SQUEEZE AND INFLATED CHILDREN'S BALL WHEN HE GROWS UP? MEMORY IS THE SUM OF QUESTIONS WHICH SOCRATES TRIED TO ANSWER. TODAY WE THINK WITH A SMILE OF HIS OPINION THAT THERE MUST BE SOME KIND OF WAX PLATE IN THE HUMAN MIND, AND IF A PERSON WANTS TO MEMORIZE SOMETHING A TRACE LIKE THAT MADE BY A SIGNET RING IS IMPRINTED ON THE WAX. SCIENTISTS HAVE ANSWERED MANY QUESTIONS ABOUT MEMORY. AND THE WAX PLATE WAS EXPLAINED LONG AGO AS BEING COMPLICATED INTERACTIONS OF CELLS AND PHYSIOCHEMICAL REACTIONS. IF THIS IS SO, IS IT POSSIBLE TO CONTROL MEMORY, IS IT POSSIBLE TO ERASE TRACES OF IMPRESSIONS FROM THE MEMORY THE SAME WAY THAT A MELODY OF WHICH ONE HAS BECOME TIRED CAN BE ERASED FROM A RECORDING TAPE? "I THINK SO," ANSWERS ROSTISLAV IL'YUCHENOK, DOCTOR OF MEDICINE AT THE INSTITUTE OF PHYSIOLOGY OF THE SIBERIAN BRANCH OF THE USSR ACADEMY OF SCIENCES. NUMEROUS EXPERIMENTS IN THE LABORATORY OF NEUROPHYSIOLOGY AND PHARMACOLOGY OF BEHAVIOR, WHICH HE DIRECTS, HAVE CONFIRMED THIS. IT WAS HERE THAT THEY WERE SUCCESSFUL IN "ERASING" NOT ONLY SHORT TERM, BUT LONG TERM EMOTIONAL MEMORY AS WELL. THE SCIENTIST LECTURED ON THE RESULTS OF HIS WORK AT INTERNATIONAL SYMPOSIUMS IN MOSCOW, WASHINGTON, BASEL, AND TIKHANI, HUNGARY.

UNCLASSIFIED

3/8 016 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142453

ABSTRACT/EXTRACT--BUT, AS FREQUENTLY OCCURS IN SCIENCE, NEW PROBLEMS ARISE IN CONNECTION WITH THE SOLUTION OF THE OLD. IF THE MEMORY CAN BE BLOCKED BY CERTAIN PHARMACOLOGICAL SUBSTANCES, IS IT NOT BECAUSE THERE ARE NEUROCHEMICAL MECHANISMS IN THE BRAIN WHIHC REGULATE IT? THE EXPERIMENTS CONTINUE IN THE LABORATORY. ATTRACTIVE MONGRELS AND POODLES ARE BROUGHT INTO THE MANEGE AS BEFORE, AND MICE AND RATS ARE BROUGHT INTO THE NEIGHBORING ROOM. THEY HAVE VARIOUS REACTIONS TO BELLS, HORNS, INJECTIONS, AND ELECTRICAL SHOCKS. MICE, FOR INSTNACE, REMEMBER FOR MONTHS THAT THE FINE GRILL IN THE COMFORTABLE, DARK HOLE WILL MAKE THEM ILL, SINCE AN ELECTIRCAL CURRENT RUNS THROUGH IT, SO THEY PREFER TO SIT IN BRIGHT LIGHT ON AN UNCOMFORTABLE PLANK. OBSERVATIONS OF THE BEHAVIOR OF ANIMALS UNDER EXPERIMENTAL CONDITIONS HAVE GIVEN A NAME TO THE RESEARCH METHOD: BEHAVIORAL. IT IS USED IN THE LABORATORY TO STUDY THE MECHANISM OF MEMORY, AND TO UNDERSTAND WHAT TAKES PLACE IN THE BRAIN FROM THE TIME WHEN IT RECEIVES INFORMATION UNTIL IT IS RETURNED TO THE EXTERNAL WORLD AS THE ANIMAL'S BEHAVIOR. IN SUCH RESEARCH ELECTRICAL CURRENT, THE RULES OF GRAMMER, AND LINES OF POETRY ARE CALLED THE SAME THING IN PRINCIPLE, IRRITANTS. THEN JUST WHY ARE ONLY THOSE IRRITANTS WHICH WE LIKE OR WHICH FRIGHTEN US REMEMBERED FROM THE FIRST? DOES THIS MEAN THAT THE EMOTIONS PLAY A PART? "IN ORDER TO UNDERSTAND THIS," SAYS IL'YUCHENOK, "IT IS NECESSARY TO DIGRESS SOMEWHAT AND TO UNDERSTAND THE IMPORT, THE BIOLOGICAL MEANING OF EMOTIONS. THERE ARE MANY PEOPLE WHO ARE CONVINCED THAT THE EMOTIONS ARE A USELESS EXPENDITURE OF ENERGY.

UNCLASSIFIED

4/8 016 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142453

ABSTRACT/EXTRACT--THUS, FOR INSTANCE, PHYSIOLOGIST AND PROFESSOR PAVEL SHMONOV FROM MOSCOW WRITES THAT ONE CAN ACHIEVE ANY GOAL WITHOUT ANY "EMOTIONAL ACCOMPANIMENT". AT FIRST GLANCE THIS PARADOXICAL ASSERTION IS COMPLETELY JUSTIFIED. IF A LIVING THING HAS INFORMATION NEEDED TO ACHIEVE A GOAL OR TO SATISFY ITS REQUIREMENTS, THE EMOTIONS ARE HARMFUL. THEY WILL ONLY INTERFERE, DISPERSE ITS POWERS, AND DISRUPT THE BALANCE OF THE ORGANISM'S ENERGIES. ALARM AND FEAR ARE HARMFUL IF ONE HAS ALL NECESSARY MEANS FOR DEFENSE IN TIME OF DANGER. THERE WOULD BE NEITHER JOY NOR EXULTATION IF, AT A PREDETERMINED TIME, HAVING PERFORMED CERTAIN ACTIONS, ONE ATTAINED A GOAL, THE ATTAINMENT OF WHICH WAS NEVER IN DOUBT. BUT THE ENVIRONMENT IS CONSTANTLY CHANGING, AND LIVING THINGS NOT ONLY DO NOT HAVE SUFFICIENT INFORMATION ABOUT THESE CHANGES, THEY ALSO DO NOT HAVE TIME TO ADAPT TO THEM. HERE IS WHERE THE EMOTIONS COME TO THEIR AID. AN EXPERIMENT IS UNDERWAY. THE LABORATORY FASTENS A DOG NAMED PIRAT TO THE PLATFORM. A BELL SOUNDS AND PIRAT RECEIVES AN ELECTRICAL SHOCK IN HIS PAW. IN ORDER TO AVOID THE PAIN THE ANIMAL HAS ONLY TO RAISE HIS PAW. BUT UNTIL IT "UNDERSTANDS" WHAT TO DO, UNTIL IT RECEIVES THE NECESSARY INFORMATION, FEAR GUIDES ITS BEHAVIOR. PIRAT BREAKS FREE FROM HIS STRAPS AND TRIES TO RUN AWAY. BUT EVEN IF HE SUCCEEDS HE WILL BE BROUGHT BACK AGAIN. AS SOON AS HE "UNDERSTANDS" THAT THE BEST METHOD OF SELFDEFENSE IS TO RAISE HIS PAW, HE QUIETS DOWN AND DOES THIS AT EACH SUCCESSIVE RING OF THE BELL. EMOTIONS ARE NO LONGER NEEDED. THIS IS ONE EXAMPLE. IT IS NOT NECESSARY TO GO TO THE LABORATORY IN ORDER TO SEE ANOTHER.

UNCLASSIFIED

5/6 016 UNCLASSIFIED PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AN0142453
ABSTRACT/EXTRACT--EVERYBODY RUNS INTO IT IN DAILY LIFE. THE SPEECH OF A FRIEND OR ENEMY, OR ONE'S OWN SPEECH BECOMES EMPHATICALLY EMOTIONAL WHEN LOGICAL ARGUMENTS DO NOT SUFFICE, WHEN THERE IS NOT TIME TO EXPRESS THEM, OR WHEN REASONING DOES NOT WORK. PAVEL SIMONOV IS PROBABLY CORRECT IN SAYING THAT THE EMOTIONS COMPENSATE FOR A LACK OF INFORMATION ABOUT HOW TO ATTAIN A GOAL. THEY ARE USEFUL HERE. RAGE HELPS MAN TO FIGHT IN THOSE CONDITIONS WHEN HIS DESTRUCTION SEEMS COMPLETELY EVIDENT. THE FEELING OF ALARM CONSTRAINS HIM FROM RASH ACTIONS WHEN THERE ARE REMOTE INDICATIONS OF DANGER. FERVOR AND WORK ENTHUSIASM MAKE IT POSSIBLE TO ACHIEVE RESULTS WHICH EVEN SOBER CALCULATIONS CANNOT FORESEE. "WE CAN DO AS MUCH AS WE KNOW, PLUS WHAT EMOTIONAL TENSION GIVES US". THIS CHARACTERIZATION OF THE EMOTIONS IS TRUE AND ACCURATE. EMOTIONAL REACTIONS ARE USEFUL TO THOSE WHO MOBILIZE THEI WILL POWER AND STRENGTHEN AND ACCELERATE REACTION. BUT IS IT POSSIBLE TO CONTROL THE EMOTIONS ARTIFICIALLY? IN THE LABORATORY THIS IS DONE WITH THE HELP OF CHEMICALS SUCH AS BENZACINE, GALANTHAMINE, AMIZIL, AMINAZIN AND OTHERS. THEY ARE PUT INTO BLOOD VESSELS OR DIRECTLY INTO THE BRAIN. THEY CHANGE THE PHYSICOCHEMICAL PROCESSES THAT DETERMINE EMOTIONAL BEHAVIOR. ANOTHER EXPERIMENT. THE DOG SITS ON A PLATFORM AND AWAITS THE SIGNAL. THE BELL SOUNDS AND IT EATS FROM THE LEFT FEEDER; THE HORN SOUNDS AND IT APPROACHES THE ONE ON THE RIGHT. THE BELL AGAIN, AND IT GETS AN ELECTRICAL SHOCK AT THE LEFT FEEDER. THE DOG WILL NOT APPROACH THIS FEEDER AGAIN. THEY TRY TO PUSH HER UP TO IT. IN VAIN.

UNCLASSIFIED

6/8 016 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142453

ABSTRACT/EXTRACT--THE EMOTION FEAR HELPED IT TO REALIZE THE DANGER IMMEDIATELY AND FOR A LONG PERIOD OF TIME. AFTER THE SHOCK THE ANIMAL WILL NOT APPROACH THE FEEDER FOR MONTHS. BUT NOW THEY HAVE GIVEN IT AMIZIL AND THE FEAR IS GONE. AND THE MEMORY AS WELL AS THE FEAR. THE BELL RINGS AND THE ANIMAL AGAIN APPROACHES THE LEFT FEEDER. MEMORY OF THE DANGER HAS BEEN "EARSED". EVEN AFTER THE SUBSTANCE HAS LEFT THE ORGANISM, THE MEMORY WILL NOT RETURN. BUT COULD IT BE DONE SO THAT A SUBSTANCE GIVEN IN ADVANCE WOULD HINDER THE APPEARANCE OF FEAR? IT COULD. THERE IS ANOTHER EXPERIMENT FOR THIS. ALL OF THESE, THE FIRST, SECOND, AND THIRD, SHOW THAT MEMORY DEPENDS TO A SIGNIFICANT DEGREE ON THE ACTIVITY OF THOSE PARTS OF THE BRAIN WHICH DETERMINE THE OVERALL LEVEL OF ACTIVITY AND THE AROUSAL OF EMOTIONAL REACTIONS, ESPECIALLY RETICULAR AND LIMBIC. THE SUBSTANCES MENTIONED ACT PRIMARILY ON THESE PARTS. HOW DO THE INDIVIDUAL CELLS OF THE BRAIN, THE NEURONS REACT TO CHEMICAL SUBSTANCES? THE PHRASE "INDIVIDUAL NEURONS" SEEMS IMPLAUSIBLE. AFTER ALL, THERE ARE 10 PRIME10 NEVER CELLS IN THE CORTEX ALONE. HERE THE ELECTROPHYSIOLOGICAL METHOD COMES TO THE AID OF THE BEHAVIORAL METHOD. ROSTISLAV IL'YUCHENOK INTRODUCES HIS COWORKERS, WHO ARE CONDUCTING RESEARCH IN THIS METHOD: PHYSIOLOGISTS GURAM ABULADZE AND MIKHAIL GILINSKIY AND NIKOLAY GLUSHKOV, COWORKER OF THE INSTITUTE OF MATHEMATICS OF THE SIBERIAN BRANCH OF THE ACADEMY OF SCIENCES. "I AM A MATHEMATICIAN, BUT WITH A BIOLOGICAL TOUCH," HE SAYS IN JEST. AN IMPORTANT FACT IS HIDDEN BEHIND THE JOKE: COMPUTERS ARE HELPING TO GENERALIZE AND ANALYSE THE FUNCTIONING OF INDIVIDUAL NEURONS.

UNCLASSIFIED

7/8 016 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142453

ABSTRACT/EXTRACT--THE DATA ARE PROCESSED BY THEM EVEN AS THE EXPERIMENTS TAKE PLACE. HERE IS THE EXPERIMENT. MINUTE ELECTRODES ARE PUT INTO THE OPEN BRAIN OF A LIVING CAT AT PREDETERMINED POINTS. THE ATLAS OF THE BRAIN, ITS UNIQUE MAP, SERVES AS "PROMPTING". HERE IS THE CENTER OF SKIN SENSITIVITY, HERE THE VISION CENTER, HERE THE HEARING REGION. THE ELECTRODE HAS ENTERED THE NECESSARY CENTER. THE STIMULUS GIVEN. A TRACE APPEARS ON THE OSCILLOGRAPH. THE SCIENTIST ANALYSES THESE SIGNALS. NEW FACTS AND NEW HYPOTHESES ARE FORMED. MIKHAIL GILINSKIY HAS OBTAINED INTERESTING RESULTS. IN HIS OPINION, WHEN CERTAIN SUBSTANCES ARE ACTING, THE LOSSES OF MEMORY CORRESPOND TO THE DISRUPTION OF THE PICTURE ON THE LIGHTED DISPLAY (MADE OF MANY LAMPS) ONE DOES NOT RECOGNIZE THE PICTURE, NOT ONLY WHEN ONE TURNS OFF THE LAMP PART, BUT ALSO WHEN NEW, DISORDERED LAMPS LIGHT UP. THE MEMORY TRACE IS DISRUPTED IN THE SAME WAY, WHEN THE SIGNALS GO BEYOND ACCEPTABLE LIMITS.

PEOPLE FREQUENTLY ASK ABOUT THE PRACTICAL SIGNIFICANCE OF SUCH RESEARCH. THE ANSWER TO THIS IS JUST AS UNIVERSAL AND PROFOUND AS THE ANSWER TO QUESTIONS ABOUT WHY WE STUDY THE UNIVERSE. IN ANY CASE, MANKIND SAVES ITSELF FROM DEATH OR COMPLETE FOLLY JUST BECAUSE IT UTILIZES THE EXPERIENCE OF BILLIONS OF YEARS OF EVOLUTION. AND IT UTILIZES IT BECAUSE IT REMEMBERS. MANY ROAD LEAD TO THE SOLUTION OF THE SECRETS OF MEMORY: UTILIZATION OF MODERN COMPUTING EQUIPMENT TO ANALYSE THE ACTIVITY OF THE NEURON, CREATION OF THE CONTROLLED EXPERIMENT, DUPLICATION OF THE ACTIVITY OF THE BRAIN'S NEURONS, FINDING ANALOGIES BETWEEN VARIOUS KINDS OF MEMORY, AND SEARCHING FOR NEW APPROACHES.

UNCLASSIFIED

8/8 016 UNCLASSIFIED

CIRC ACCESSION NO--AN0142453 PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--IT IS DIFFICULT TO SAY WHICH ROAD RESEARCHERS WILL TAKE IN THE FUTURE. IN GENERAL, IT IS RASH TO ANTICIPATE RESULTS IN SCIENCE. BUT THERE CAN BE NO DOUBT THAT THE TASKS WHICH SCIENTISTS ARE SETTING FOR THEMSELVES ARE COMPLETELY PRACTICABLE.

UNCLASSIFIED

USSR

UDC: 8.74

RASTRIGIN, L. A., YAMPOL'SKAYA, T. S., RASTRIGIN, V. L., ABRAMOVICH, V. L.

"An Adaptive Program for Instruction in Memorizing Foreign Words"

Riga, Adaptiv. sistemy--sbornik (Adaptive Systems--collection of works), vyp. 2, "Zinatne", 1972, pp 66-75 (from RZh-Kibernetika, No 5, May 73, abstract No 5V822 by the authors)

Translation: An adaptation program is proposed for teaching foreign words with regard to the individual peculiarities of the pupil. A model of the teaching process was developed which was implemented on a digital computer. The effectiveness and convergence of the adaptation process are demonstrated.

1/1

USSR

UDC: 681.332.65

LAZER, I. M., OVSISHCHER, P. I., YAMPOL'SKIY, A. B., SHUBAREV, V. A.

"A Reversible Counter With Group Carry"

USSR Author's Certificate No 287121, filed 4 Jul 69, published 21 Jan 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B236 P)

Translation: A reversible counter with group carry is known which is based on potential OR-NOT (AND-NOT) elements, in which each digital place is built on nine elements, six of which form the counter digit proper, which is comprised of three flip-flops with set inputs, one being a memory flip-flop and two being commutation flip-flops, while three elements per digital place are necessary for constructing the carry circuit. This type of set-up has the following disadvantages: The operating reliability of the counter is poor, since the count digit of the flip-flop has no memory of the preceding state when the next count pulse arrives, and logical shifts occur in the carry circuit. The speed of the counter is reduced because of the presence of two series diodes in the ripple-through carry circuits.

1/2

USSR

LAZER, I. M. et al., Soviet Patent No 287121

The purpose of the proposed invention is to provide a reversible counter circuit on potential logic elements (AND-NOT, OR-NOT) which is free of the disadvantages mentioned above while reducing the expenditure of equipment per digital place in the counter. This purpose is achieved by introducing two diodes into each count digit with the appropriate connections to implement the functions of reversal and storage of the preceding state. The group carry function is performed by logic elements of the count circuit by means of the added diodes. Two illustrations.

2/2

USSR UDC 621.374.32

LAZER, I. M., OVSISHCHER, P. I., YAMOPOL'SKIY, A. B., SHUBAREV, V. A.

"A Reversible Counter With Group Carry"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287121, class 21, filed 14 Aug 68, published 19 Nov 70, p 64

Translation: This Author's Certificate introduces a reversible counter with group carry based on potential AND-NOT (OR-NOT) logic elements. A digital position in the device contains a counting circuit based on three flip-flops which are separately triggered. One of these is a storage flip-flop and the other two are commutation flip-flops. As a distinguishing feature of the patent, the circuit is simplified, speed is increased and reliability is improved by adding two diodes to each digital position of the counter. The first input of the first diode is connected to the ones state of the first commutation flip-flop, and the analogous input of the second diode is connected to the zeros state of the same flip-flop. The second input of the first diode is connected to the zeros state of the second commutation flip-flop, and the analogous input of the second diode is connected to the ones state of this same flip-flop. The third inputs

USSR

LAZER, I. M., et al., Otkrytiya, izobreteniye, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287121, class 21, filed 14 Aug 68, published 19 Nov 70, p 64

of the diodes are connected to the "add" and "subtract" inputs respectively. The diode outputs are connected to the set terminals of the commutation flip-flops for all following digital positions.

2/2

1/2 011 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--SOME CHARACTERISTICS OF TURBULENT ENERGY TRANSPORT AND TRANSFORMATION IN THE OCEAN -U-

AUTHOR-(03)-OZMIDOV, R.V., BELYAYEV, V.S., YAMPOLSKIY, A.D.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 3, 1970, PP285-291

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEANOGRAPHIC BUOY, FLOW VELOCITY, OCEAN DEPTH, OCEAN CIRCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1163 STEP NO--UR/0362/70/006/003/0285/0291

CIRC ACCESSION NO--AP0118259

UNCLASSIFIED

USSR

UDC 621.357:669.21/23(04)

YAMPOL'SKIY, A. M.

Leningrad, Elektroliticheskoye Osazhdeniye Blagorodnykh i Redkikh Metallov (Electrolytic Precipitation of Precious and Rare Metals), Izd-vo "Mashinostroyeniye," 1971, 128 pp

Translation of Foreword: The precipitation of precious and rare metals from all types of galvanic protective-decorative coatings is distinguished by several special features. First of all, the technological precipitation processes of precious and rare metals are characterized by particular carefulness of each operation and economy in regard to salt consumption of these metals and of the anodes. The preservation of the electrolytes and the reduction of irreversible losses are the principal workshop tasks. These conditions require that each industrial worker behave attentively toward all components of the technological process. In all areas of the electrical engineering industry, particularly radio

2/2 011 UNCLASSIFIED

CIRC ACCESSION NO--AP0118259 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RECIPROCAL TRANSFORMATION OF THE ENERGY OF THE AVERAGED AND FLUCTUATING MOTIONS IN THE OCEAN A IS COMPUTED ON THE BASIS OF DATA ON VELOCITIES MEASURED DURING TWO MONTHS OF OBSERVATIONS IN THE ARABIAN SEA. THE MEASUREMENTS WERE MADE AT SEVEN BUOY STATIONS WITH 11 OBSERVATION HORIZONS. THE COMPUTATIONS GAVE VALUES A EQUALS 0.5 MINUS 2.5 TIMES 10 PRIME NEGATIVE4 G-CM TIMES SEC PRIME3 FOR THE UPPER LAYERS BUT IN THE DEEPER LAYERS A IS NEGATIVE. THE DEPENDENCE OF A ON DEPTH AND THE PERIOD FOR AVERAGING OF THE VELOCITY COMPONENTS WAS DETERMINED. THESE A VALUES MAKE IT POSSIBLE TO DETECT A NUMBER OF INTERESTING CHARACTERISTICS OF THE [illegible] OF THE VELOCITY FIELD IN THE OCEAN AND DETERMINE THE TRANSFORMATION OF ENERGY IN THE SPACE OF WAVE NUMBERS AND VERTICALLY. FOR EXAMPLE, IT WAS FOUND THAT WITH AN INCREASE IN DEPTH LARGESCALE MOTIONS ARE FILTERED OUT AND IN THE LOWER LYING LAYERS OF THE OCEAN ENERGY IS TRANSPORTED ONLY TO SMALLER AND SMALLER VELOCITY FORMATIONS. THE ABSOLUTE ENERGY FLUX CHANGES REGULARLY WITH DEPTH AND WITH THE SCALE USED IN SEPARATING THE VELOCITY FIELD INTO AVERAGED AND FLUCTUATING COMPONENTS. IT IS EMPHASIZED THAT THE DETERMINED VALUES CAN BE CHARACTERISTIC ONLY FOR THIS PARTICULAR OBSERVATION REGION AND IT IS RISKY TO APPLY THEM TO OTHER OCEAN AREAS. FACILITY: INSTITUTE OF OCEANOLOGY.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203620003-3"

UNCLASSIFIED

USSR

YAMPOL'SKIY, A. M., Elektroliticheskoye Osazhdeniye Blagorodnykh i Redkikh Metallov, Izd-vo "Mashinostroyeniye," 1971, 128 pp

is of similar importance. The precipitation of platinum, gold, iridium, and other chemically resistant metals, is widely used in the production of unoxidizable coatings which are resistant to many aggressive media. Gold-plating is widely used in the protective-decorative finishing of various articles. The technology of these types of coatings is discussed in the booklet with attention given to the features of each process, their characteristics, and purposes. Since publication of the second edition of "Bibliotechki Gal'vanotekhnika," the mentioned processes have been applied in new industrial branches, and new electrolytes and precipitation methods have been developed. These changes and supplements are reflected in this third edition of the booklet. Particular attention has been paid to silver-plating of various metals and to special silvering processes. In addition, chapter 4 discusses the precipitation technology of some metals not included in the group of precious and rare metals, e.g., bismuth, manganese, antimony, etc., used in all fields of
2/6 machine building.

USSR

YAMPOL'SKIY, A. M., Elektroliticheskoye Osazhdeniye Blagorodnykh i Redkikh Metallov, Izd-vo "Mashinostroyeniye," 1971, 128 pp

Translation of Table of Contents:



3/6

USSR

YAMPOL'SKIY, A. M., Elektroliticheskoye Osazhdeniye Blagorodnykh i Redkikh Metallov, Izd-vo "Mashinostroyeniye," 1971, 128 pp



4/6

USSR

YAMPOL'SKIY, A. M., Elektroliticheskoye Osazhdeniye Blagorodnykh i Redkikh Metallov, Izd-vo "Mashinostroyeniye," 1971, 128 pp



5/6

USSR

YAMPOL'SKIY, A. M., Elektroliticheskoye Osazhdeniye Blagorodnykh i Redkikh Metallov, Izd-vo "Mashinostroyeniye," 1971, 128 pp



6/6

USSR

UDC: 621.396.24

YURLOV, F. F., YAMPOL'SKIY, E. M.

"Experimental Determination of the Durations of Interruptions and Gaps in Communications on Short Waves"

Tr. Gor'kov. politekhn. in-ta (Works of Gor'kiy Polytechnical Institute), 1971, 27, No 11, pp 103-105 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A276)

Translation: A brief report on the results of work in studying the statistical principles which govern fading on short waves. The measurements were made with a special receiver and a loop oscilloscope. Statistical processing of the oscillograms gave a law for distribution of the amplitudes of a fading signal, and laws of distribution of interruptions and gaps in communications. Two illustrations, bibliography of two titles. N. S.

1/1

USSR UDC: 621.391.81

YAMPOL'SKIY, E. M.

"Optimal Transfer of Discrete Signals Through a Communication Channel With Randomly Varying Parameters"

Tr. Gor'kov. politekhn. in-ta (Transactions of the Gor'kiy Polytechnical Institute) Vol 27, No 11, 1971, pp 106-109 (from RZh--Radiotekhnika, No 4, 1972, Abstract No 4A56)

Translation: The signal/noise ratio at the output of the generalized channel (the communication channel plus the linear part of the receiver) is maximized by choosing the optimal form of the signal. It is assumed that the channel parameters vary in random ways. Ordinary methods of optimization and the known resources of functional analysis are used (the Duhamel integral, the Shvartz-Bunyakovskiy inequality). It is shown that the signal energy must be distributed over the entire interval of the communication and over the pass band, with the shape of the square of the channel transfer characteristic and the channel transfer factor taken into account. Bibliography of three titles. G. Ya.

1/1

YAMPOL'SKIY, I. R.

JPRS 56371

28 June 1972

MULTITUBE GENERATOR BANK

[Article by G.I. Zverev, V.L. Lyul'yev, V.B. Mayburov, I.S. Savchenko, and I.R. Yampol'skiy; Preprint-6, Russian, 24 November 1970, pp 1-13]

The experimental work in the study of the interaction of high-frequency fields with a plasma have required the creation of exceptionally powerful pulse generator systems in the 1-5 megahertz frequency range. Reference [1] contains a description of a setup and a high frequency 3-phase self-excited oscillator for studying the interaction of a traveling field with a plasma. This setup is characterized by the conditions of a strong connection of the circuit to the plasma. The installed power of the tubes of the self-excited oscillator is 60 megawatts.

In references [2, 3] on experimental studies of dynamic stabilization and confinement of a plasma, high frequency electromagnetic fields of quadrupolar configuration rotating around the plasma column are used. The performance of this research required the creation of a generator bank with an installed tube capacity of about 80 megawatts. The primary difficulties in creating generators of this type are connected with the necessity for summing the power of a large number of tubes and insuring phasing such as to obtain rotating electromagnetic fields during operation of the generator on a variable load which depends on the plasma properties and the connection with the plasma.

In contrast to [1], the described generators are characterized by operating conditions determined by the low coupling of the high frequency field to the plasma (the level of the high frequency fields in the plasma region is relatively small). The losses in the plasma, as a rule, do not exceed 10-40 percent of the losses in the circuit. This permitted application of direct connection of the circuit to the tube anodes without any matching devices. In the mode without a plasma, the generator operates in a strongly overloaded mode. Additional loading of the circuit by the plasma does not lead to a significant reduction in voltage on the circuit, and the tube conditions approach critical.

In a number of cases more significant loading of the circuit by the plasma was observed. In order to eliminate the strong voltage reductions in the circuit, independent excitation was used in these cases.



[I - USSR - L]

USSR

UDC 621.385.623.4

ALFEROV, V.N., VLADIMIRTSEV, M.B., VISHNEVSKAYA, A.M., KOTOV, V.I., PROSIN, B.V., SHCHELKUNOV, G.P., YAMPOL'SKIY, I.R.

"Concerning Phase Stability Of Power Klystron"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue 11, pp 136-139 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A171)

Translation: Data are presented characteristic of the dependence of the phase of the output signal on the magnitude of the anode voltage, the exciting power, the focusing regime, the filament voltage, and the temperature of the cooling water. The apparatus for phase measurements is described. The experiments were conducted on Type KIU-12AM klystrons. 2 ref. Summary.

1/1

USSR

UDC 621.385.032.98

SHCHELKUNOV, G.P., YAMPOL'SKIY, I.R., ALFEROV, V.N., MOISEYEV, K.A.

"Process Of Aging Of Power Klystrons With A Positive Polarity Of The Voltage At The Cathode"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics.), 1970, No 1, pp 146-148 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A103)

Translation: A method is considered for aging of power klystrons (KIU-12), making use of a limiting resistance (the procedure is suitable for devices which have either a thermionic cathode or a cold cathode). During such aging, cases were observed where breakdown was completed even in the course of a voltage pulse. Several devices were aged by the new process. An advance of the voltage to the required magnitude was performing during 0.5--1.5 hours and the number of breakdowns did not exceed 15. After shifting to the usual polarity, additional aging by the ordinary method is necessary, but the time for it shortens to 1--2 hours and the number of breakdowns amounts to 100-300 instead of the 600-800 during aging by the old method. After finishing off of the procedure, it is proposed to eliminate completely the additional aging. The quality of the devices (stability of operation, durability) passing the "without current" aging must be increased substantially, because such aging assures a reduction of failures of the electrodes by breakdowns. 2 ill. 2 ref. G.B.

1/1